

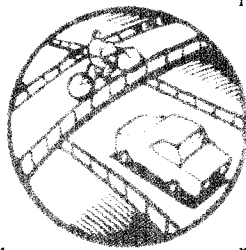


SAFETY

New Users Guide Focuses on Creating Pedestrian Safety

In 2000, more than 4,739 pedestrians were killed and 78,000 were injured in U.S. motor vehicle crashes. These figures point toward a need to increase pedestrian and bicycle safety and mobility. Whether it's making improvements in crosswalks, sidewalks, walkways and pedestrian technologies, or expanding public education and safety programs, Federal Highway Administration's (FHWA)

Pedestrian and Bicycle Safety Research Program strives to pave the way for a more walkable future.



A part of a larger FHWA study, *Evaluation of Pedestrian Facilities*, the Pedestrian and Bicycle Safety Research Program recently published the *Pedestrian Facilities Users Guide—Providing Safety and Mobility*, to help transportation

engineers, planners, and safety professionals make cities more pedestrian-friendly and safe. The Guide offers plenty of useful information about safe walking environments, and highlights the main causes of pedestrian crashes and strategies for countering them.

Pedestrian Facilities Users Guide—Providing Safety and Mobility is also a tool for enabling professionals to identify pedestrian safety needs within roadway rights-of-way. It
(Continued on page 2)



This intersection illustrates the use of several safe features including the "Walking Pedestrian" signal and a pedestrian crosswalk. Notice that several of the pedestrians crossing the street fail to remain within the "safe" crossing zone.



This photo shows pedestrians standing on a depressed median, four-lane separator. It might be safer under certain traffic conditions for the pedestrians to wait for the light to change on the corner of the road.

RESEARCH & TECHNOLOGY TRANSPORTER

The *Research and Technology Transporter* communicates FHWA research, development, and technology accomplishments, findings, information, and technology transfer opportunities. Its audience is transportation engineers and professionals in State and local highway agencies, State DOTs, Local Technical Assistance Programs, Divisions, Resource Centers, Core Business Units, academia, and the research community. The eight-page newsletter is published monthly by FHWA's RD&T service business unit. Editorial offices are housed at the Turner-Fairbank Highway Research Center. Comments should be sent to the managing editor at the address below. Field offices are encouraged to submit articles for publication via the appropriate agency technology leader from the editorial board listed below. The newsletter can be viewed online at www.tfhr.gov. Subscriptions to the *Transporter* are free. Send your request to Judy Dakin at the address below, or send e-mail to judy.dakin@fhwa.dot.gov.

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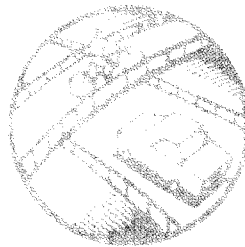
National Work Zone Awareness Week Promotes Safety and Mobility

Despite the efforts of transportation officials to create safe and mobile work zones, multiple injuries and fatalities continue to occur across the country. Recent years have demonstrated an alarming upward trend in work-zone related automobile crashes. In 2000, alone, there were an estimated 1,093 fatalities in work zones.

To focus attention on the need for work zone safety and mobility, Federal Highway Administration, State DOTs, and safety partners will host the third annual National Work Zone Awareness Week from April 8–12, 2002. The theme for this year's campaign is *Roadways Keep America Moving—Drive Safely in Work Zones*, which organizers hope will increase driver awareness in work

zones, thereby improving safety for both motorists and highway workers.

The kick-off on Tuesday, April 9, 2002 will feature a brief presentation by Federal Highway Administrator Mary Peters held at a work zone site located at the I-95/I-495 Interchange at Ritchie Marlboro Road in Prince George's County, Maryland. There will also be a ceremonial unveiling of a memorial wall in honor of those who lost their lives in work zones. The memorial is a portable wall that can be transported from location to location. For further information about this event, contact **Ann Walls** 202-366-6836 Ann.Walls@fhwa.dot.gov



(Continued from page 1)

defines 13 pedestrian crash-type groupings and the types of possible safety countermeasures for each group in different crash situations. Along with this information, the guide also includes the purpose, considerations, and estimated costs for each countermeasure.

The *Pedestrian Facilities Users Guide* also supplies a number of case studies which highlight success stories in Asheville, NC; Cambridge, MA; Boulder, CO; Fort Pierce, FL; and Portland, OR;

including traffic calming, reducing speed through neighborhoods, revitalizing downtown areas, and improving safety for children near schools.

A printed version is not yet available; however, the *Pedestrian Facilities Users Guide*, is currently available online by visiting the following website:

http://safety.fhwa.dot.gov/fourth-level/design_p.htm#crosswalk.

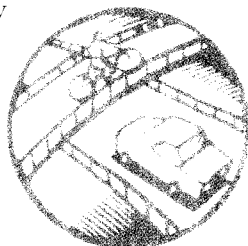
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Proactive Approach Incorporates Surrogate Measurements into Traffic Simulations

According to accident statistics, intersections are the location of more than 45% of all reported crashes. Predicting potential driver behavior or traffic collisions is difficult because existing technology depends highly on statistics gathered after a number of crashes have already occurred. Crash models are contingent upon retrospective crash information; the crash statistics may not provide a large enough sample; and traffic engineers may not have the right type of information to correctly represent specific conditions on a road or at an intersection. Additionally, crash models involving realistic conditions—such as rush hour, traffic flow, bottlenecks, etc.—may not be accurately portrayed. Relying solely on crash statistics for crash modeling can be costly—in human safety, and infrastructure investment.

To be proactive, engineers at Federal Highway Administration's (FHWA) Office of Safety Research and Development (HRDS) have initiated research to find "surrogate safety measures" in traffic simulation models that they can use in place of, or in addition to, actual accident data. Quantifiable conflict measurements that might lead to collisions include: expected time for two vehicles to collide if they remain at their present speeds and paths; the time lapse between cars; amount of space necessary for changing lanes;

braking or deceleration to avoid a collision, etc. In performing this study, researchers must first identify and define appropriate and measurable surrogate actions or events, then recommend applicability to existing traffic simulation models for



intersections. They must also develop functional requirements and logic for the simulation software, which depicts safety measures for intersections.

After estimating these surrogate safety measures, HRDS plans to make the logic available for implementation by software vendors. This study will involve the following:

Phase I

- Gathering information from research literature in surrogate safety modeling
- Gauging traffic simulation models' capabilities

- Identifying functional requirements
- Developing logic and surrogate safety assessment methodology

Phase II

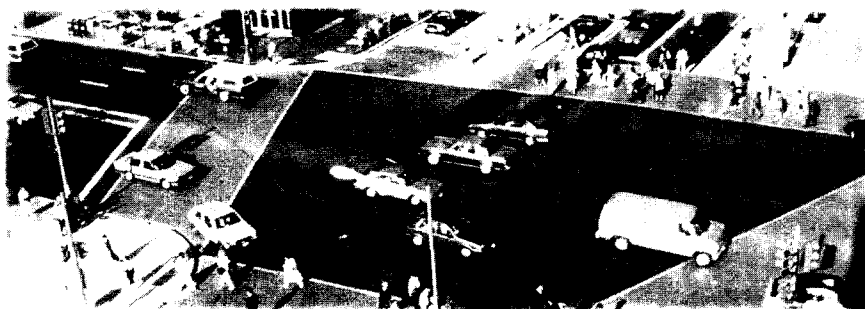
- Promoting or contributing to the development of a surrogate safety assessment module
- Validating and incorporating the solution into existing simulation software

Once incorporated, the intersection logic will enable safety engineers and roadway designers to better evaluate the safety and mobility of both conventional and innovative roadway and intersection designs and treatments, since the new tools will enable them to simulate more encompassing and realistic conditions. A contract was awarded for Phase I of the project, scheduled for completion in December 2002.

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Intersections are one of the most high-risk traffic spots in America. This 10-lane example shows several potential safety problems such as unmarked lanes across the center of the intersection and cars turning into lanes being crossed by pedestrians.

OPERATIONS

Just-in-Time Freight Movement Becomes More Intelligent

Many businesses and organizations across America rely on "just-in-time" freight transfer and management to help cut storage costs; streamline manufacturing; shorten time-to-market; and speed up delivery processes. Increases and delays in freight movement across the U.S. create juggling challenges for freight handlers, port terminal managers, and transportation agencies. A traffic jam, auto crash, construction work zone, major public event, or inclement weather can wreak havoc on the system, as freight hubs shuffle traffic, and cargo through the loading, unloading, discharge, and storage processes. The transportation industry seeks better tools that will enable them to manage their day-to-day freight and port operations.

In November 2001, Federal Highway Administration (FHWA) awarded two operational test contracts, resulting from coopera-

tive partnerships between public and private organizations through the Intermodal Freight Technology Working Group (IFTWG). The new working group was formed to examine how technology could increase the efficiency of freight transportation operations and the tests will help them understand tracking and location technology requirements. They will use Intelligent Transportation Systems (ITS) technology to assist in transporting and monitoring freight. Both tests seek to provide State and local agencies with better and timelier information, for helping freight hubs prevent or lessen port congestion and delays.

Asset and Cargo Visibility Test will focus on transmitting freight information and movement data about container chassis in and out of a port terminal. It will include chassis staging and availability information, plus maintenance information that will help reduce

the movements of unsafe chassis. If successful, it hopes to enhance the "freight information highway" by providing freight and cargo information in a standardized format and linking to a backbone information system. Monitoring chassis movements should make it easier to manage containers in terminal yards.

Terminal Dray Operations Test plans to help improve the cross-town freight movement within the Chicago terminal area—which can normally take three to five days. The test will focus on transmitting data and information during drayage operations (a dray is any vehicle used to haul freight) while in and between delivery ports. Port of Tacoma, in Tacoma, WA, will gather container and loading information and share it with the Chicago terminal and drayage operations teams. Chicago will stage trucks to pick up containers

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At this freight hub, hundreds of containers wait to be loaded onto transportation vehicles at Port Newark.



The cargo on this supership is being unloaded by huge cranes at the Port of Long Beach.

(Continued from page 4)
as soon as they are available for movement to another rail line or to an end-destination customer.

The IFTWG plans to continue testing emerging technology and

wants to establish the business case for technology applications, which improve transportation operations. For more information, visit the FHWA Operations Core Business Unit (CBU) website at www.ops.fhwa.dot.gov.

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ITS America Completes 10-Year Plan for Intelligent Transportation Systems

ITS America's vision for Intelligent Transportation Systems (ITS) includes operational strategies to improve safety, security, mobility, the economy, and the environment in the decade ahead.

The Transportation Equity Act for the 21st Century (TEA-21) mandated development of the long-range Intelligent Transportation Systems research and development plan, including a "road map" (or outline) of current projects and programs. The U.S. Department of Transportation (DOT) chose to implement TEA-21's requirements with two separate documents: the 5-year program plan, which delineates current programs and projects, and the 10-year research and program plan. DOT developed the 5-year program and selected ITS America—a federal advisory committee—to develop the 10-year plan.

ITS America recently completed the plan, now called The National Intelligent Transportation Systems Program Plan: A Ten-Year Vision, and delivered it to DOT. Now the Department will review the work that has been done and identify the critical needs and focus areas.

Besides the ITS operational strategies to improve safety, security, mobility, the economy, and the environment over the next ten years, it examines the needs for supporting ITS deployment. Primary themes of the program plan focus on social, institutional, and political issues, and include the following goals:

- Reducing the number and severity of accidents, saving 5,000 to 7,000 lives per year by 2011
- Helping to operate the transportation system more efficiently, saving at least \$20 billion in costs each year
- Saving time by reducing delays, which will save a minimum of 1 billion gallons (3.8 billion liters) of gasoline each year, and realizing proportionate gains in reducing tailpipe emissions
- Supporting travel choices with current information
- Creating a secure system that relies on gathering and sharing real-time information to improve detection of and response to national emergencies or dangerous natural events

The 10-year program plan also identifies the need for an "infostructure"—an electronic information network that works in concert with the physical transportation infrastructure. It also calls for introducing ITS technologies into the institutional framework of surface transportation and stresses the need for continued research and development of the intelligent vehicle.

Even though most of the work on the ITS Program Plan was completed prior to Sept. 11, the overall importance of national security is clearly articulated in its first pages. Many current technologies—weigh-in-motion technology, spatial geolocation, and incident detection systems—can be used as part of homeland defense systems. To address the role of ITS in maintaining and ensuring homeland security, DOT and ITS America are assembling resources to develop an update to the Program Plan, and plan to publish the update in 2002. See *The National Intelligent Transportation Systems Program Plan: A Ten-Year Vision on the Web* at www.itsa.org/research.html.
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INTERNATIONAL

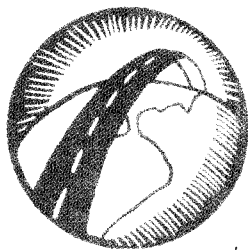
International Inroads Pave the Way for US Improvements

By building bridges across international waters, the U.S. transportation industry decreases research and development costs, expands their knowledge base of new techniques, and takes advantage of groundbreaking advances and best practices from around the world. Through international scans, the American transportation community learns from our neighbors about their successes and failures; avoids duplicative research and development; and accelerates application and adoption efforts in the U.S. transportation system.

The Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) jointly sponsored the Pavement Preservation International Scanning Tour—which linked U.S. highway experts with their overseas counterparts to learn about the newest approaches to transportation policy, operations, planning, design, construction, and maintenance. A recent international scan focused on preserving highway and road pavements.

Traditionally, highway agencies allowed the ride quality and structural condition of their pavements to deteriorate before taking rehabilitative steps. Pavement rehabilitation is costly and time consuming, resulting in traffic disruptions and inconvenience to adjacent businesses and residences. In recent

years, an increasing number of international highway agencies found that applying a series of low-cost pavement preservation treatments could extend the service lives of their pavements. In principle, this is similar to an ounce of prevention...is less costly than a pound of treatment.



The scanning team identified innovative programs and new treatments for pavement preservation in France, South Africa, and Australia. These types of innovations and practices are a few samples of the results available on the Web:

- In the French *Charter of Innovation*, government and private industry share the risk of developing new and innovative products. For new products, they issue an annual request for proposals (RFPs) and construct test sections. Together, companies and the government share the costs of conducting surveys. Successful products are then accepted nationally for inclusion in the preventive maintenance program.
- South Africa developed a

crack activity meter (CAM), which measures reflective cracking potential and the need to restore the pavement surface before placing an overlay. The meter measures horizontal and vertical movement, simultaneously, fits between the dual wheels of a test vehicle, captures data, and electronically processes the information.

- The new Australian pavement condition survey vehicle, *Road Crack*, detects cracking on the pavement surface, and is more sophisticated than currently available survey vehicles.

To view an online summary of the scan, please visit the FHWA's International Technology website, at <http://www.international.fhwa.dot.gov/pubs.html>.

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By building bridges across international waters, the U.S. saves costs, takes advantage of groundbreaking advances and avoids duplicative research from around the world.

Russia and U.S. Share Mutual Predicament

Every winter, transportation officials in the U.S. and Russia, face a battle against freezing temperatures, snow, and ice—and the effects these elements have on road maintenance; snow removal; damaged and frozen asphalt and concrete rehabilitation; and driver and pedestrian safety during hazardous conditions.

In December 2001, transportation officials from the Tomsk and Kemerovo regions in Siberia (located four time zones east of Moscow) visited and toured the Federal Highway Administration (FHWA) Turner-Fairbank Highway Research Center to discover more about FHWA national research; and they traveled to Minnesota to sign a Memorandum of Understanding with the Minnesota Department of Transportation (DOT). Siberian transportation representatives, and Minnesota transportation representatives found they had similar transportation problems. This joint effort to share knowledge benefits U.S. and Russian citizens, by reducing research duplication efforts. In the long run, international research and technology sharing programs, like this one, will also benefit the U.S. by reducing research and technology deployment times and by saving tax dollars.

The Siberian delegation was interested in a number of FHWA technologies: pavement and asphalt maintenance; pavement life extension; and a training program for publicly and privately employed



Transportation officials from Russia and the Minnesota Department of Transportation pose for a group shot in front of the DOT sign.

Siberian highway professionals. In addition, the Siberian delegation wanted to learn more about the FHWA "best practices" in the following areas: production and use of modified asphalt; winter road maintenance; bridge construction and maintenance; methods for working with wet soils and drainage; methods for slope stabilization; and technology transfer resources, methods, and operations for creating a technology transfer (T2) center, based on the U.S. model.

This technology sharing is not one-sided—Minnesota DOT transportation officials are particularly interested in a Russian snowplow extender that clears snow from behind guardrails. They believe it could prevent damage to miles of Minnesota guardrail, every winter. Minnesota DOT was also interested in reversible snowplow blades that extend the life of

the blade and fully utilize precious steel resources. Another favorite of the Minnesota DOT was Siberia's anti-icing salt that might prove to be more effective and cheaper than anti-icing technology in the U.S.

Since December 2000, FHWA has sponsored this international program, enabling the two transportation departments to share knowledge and potential solutions for fighting the effects of winter. The next phase includes sending two Siberian interns to Minnesota in September 2002. The interns will study Minnesota's financial management of routine summer and winter maintenance and participate in the National Highway Institute's (NHI) Instructor Development Course (IDC). Plans are already in the works for a joint Russian-American seminar on winter maintenance management in December 2002.

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TRAINING

National Curriculum Council Establishes Pooled-Fund Initiative and Website

The Transportation Curriculum Coordination Council (TCCC) brings together five regional training and certification groups to improve training opportunities for transportation workers; to develop a national core curriculum for use by any agency; and to build partnerships among State highway agencies and industry associations. TCCC membership includes representatives from the Federal Highway Administration (FHWA); the National Highway Institute (NHI); the American Association of State Highway and Transportation Officials Subcommittees on Construction, Maintenance, and Materials; and representatives from the construction industry. Their main goals are to

standardize training; reduce duplicative efforts; and save time and money in developing training materials.

On December 4-5, 2001, the TCCC held their third annual meeting in New Orleans, LA. The meeting featured topics about work activities and accomplishments, and highlighted discussions about assembling a pooled-fund project and developing a website. Major features of the website will include State programs and contacts; training courses; links to regional training and certification programs; and TCCC events and news. Currently in its initial stages, visitors can visit the new website at www.nhi.fhwa.dot.gov/tccc. The TCCC is also compiling an online

database of available training from the various regional certification groups.

A number of work items are ongoing or have been completed since the December meeting, such as identifying structural fabrication inspection training opportunities; developing national pollution discharge elimination systems training through the Association of General Contractors; developing training for foundations inspectors; and completing training for the design and implementation of erosion and sediment control. For more information, or to see the latest NHI course updates, visit www.nhi.dot.gov.
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